

*B1*  
*AB*  
*AKH*

circuitry being synchronized to each other; and

in a cross point switch having N input ports capable of receiving the first processed stream and the second processed stream and N output ports coupled to N input ports of an NxN switch fabric, coupling the first processed stream to a first input port of the NxN switch fabric in a first configuration and coupling the second processed stream to the first input port of the NxN switch fabric in place of the first processed stream in a second configuration upon detection of an error condition in the first circuitry, thereby providing redundancy protection for the ATM functions.

- 4) Please cancel Claims 21 and 22.

**REMARKS**

Claims 1-22 are pending in the present application.

Claims 1-22 have been rejected.

Claims 1, 14 and 19 have been amended.

Claims 12, 13, 21 and 22 have been cancelled.

Claims 1-11 and 14-20 remain in the application. Reconsideration of the claims is respectfully requested. Claims 1-11 and 14-20 are shown in their current form in Appendix A for the Examiner's easy reference.

In Sections 1-11 of the September 4, 2003 Office Action, the Examiner rejected Claims 1-6, 10-11, 15-18, 19 and 21-22 under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,436,886 to *McGill* (hereafter, simply "*McGill*"). In Sections 14-19 of the September 4, 2003 Office Action, the Examiner rejected Claims 7-9, 12-14, and 20 under 35 U.S.C. §103(a) as being unpatentable over the *McGill* reference in view of United States Patent No. 5,715,237 to *Akiyoshi*.

(hereafter, simply "*Akiyoshi*"). The Applicants have amended Claims 1, 14 and 19 in order to more particularly point out and distinctly claim the Applicants' invention. This being the case, the Applicants respectfully assert that the Examiner's rejections of Claims 1-22 under 35 U.S.C. §§102(b) and 103 are now moot.

The Applicants direct the Examiner's attention to amended Claim 1, which contains the following unique and novel limitations:

1. An apparatus providing equipment and facility redundancy, comprising:
  - working circuitry configured to receive and process a first stream of communication data;
  - protection circuitry configured to receive and process a second stream of communication data, the second stream being identical to the first stream, the protection circuitry and the working circuitry being functionally identical and synchronized to each other;
  - an NxN switch fabric having N input ports and N output ports, wherein each of the N input ports may be connected to any one of the N output ports; and
    - a first cross point switch having N input ports and N output ports capable of receiving the processed first stream and the processed second stream, wherein the first cross point switch couples the processed first stream to a first input port of the NxN switch fabric in a first configuration and couples the processed second stream to the first input port in place of the processed first stream in a second configuration upon detection of an error condition in at least one of the working circuitry and the first stream of communication data. (emphasis added)

The Applicants respectfully assert that the above-emphasized limitations of the amended Claim 1 are not disclosed, suggested or even hinted at in the *McGill* reference or the *Akiyoshi* reference, or in the combination of the *McGill* reference and the *Akiyoshi* reference. The *McGill* reference discloses a switching architecture in which two switching fabrics (SF0 and SF1) are connected to redundant multiplexers (AX0 and AX1). Each input port of the switching fabrics SF0

and SF1 is connected to the output of only one multiplexer. Thus, each input port of SF0 is connected to an output of one of the AX0 multiplexers and each input port of SF1 is connected to an output of one of the AX1 multiplexers. Each of the AX0 and AX1 multiplexers is connected to two line cards (LC0 and LC1. Unlike the invention recited in Claim 1, there is not switching device of any kind disclosed in the *McGill* reference or the *Akiyoshi* reference that couples multiple input streams to the same input port of a single switch fabric.

In sum, the unique and novel limitations recited in Claim 1 are not disclosed, suggested or even hinted at in the *McGill* reference or the *Akiyoshi* reference, or in the combination of the *McGill* reference and the *Akiyoshi* reference. This being the case, Claim 1 presents patentable subject matter over the *McGill* reference and the *Akiyoshi* reference. Also, Claims 2-18 depend from Claim 1 and contain all of the unique and novel limitations recited in Claim 1. Thus, Claims 2-18 are patentable over the *McGill* reference and the *Akiyoshi* reference.

Furthermore, independent Claim 19 contains limitations that are analogous to the unique and novel limitations recited in Claim 1. Claim 19 is therefore patentable over the *McGill* reference and the *Akiyoshi* reference, both individually and in combination. Finally, dependent Claim 20 depends from Claim 19 and contain all of the unique and novel limitations recited in Claim 19. This being the case, Claim 20 is patentable over the prior art references.

**SUMMARY**

For the reasons given above, the Applicant respectfully requests reconsideration and allowance of pending claims and that this Application be passed to issue. If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at [jmockler@davismunck.com](mailto:jmockler@davismunck.com). The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,  
DAVIS MUNCK, P.C.

Date: 6 Jan, 2003

P. O. Drawer 800889  
Dallas, Texas 75380  
Phone: (972) 628-3600  
Fax: (972) 628-3616  
E-mail: [jmockler@davismunck.com](mailto:jmockler@davismunck.com)

John T. Mockler  
John T. Mockler  
Reg. No. 39,775

APPENDIX A

CLAIMS WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) An apparatus providing equipment and facility redundancy, comprising:  
working circuitry configured to receive and process a first stream of communication data;  
protection circuitry configured to receive and process a second stream of communication data, the second stream being identical to the first stream, the protection circuitry and the working circuitry being functionally identical and synchronized to each other; [and]  
an NxN switch fabric having N input ports and N output ports, wherein each of the N input ports may be connected to any one of the N output ports; and  
a first cross point switch [configured to select from one of the first stream and the second stream and further configured to select and substitute the second stream for the first stream upon detection of an error condition in at least one of the working circuitry and the first stream of communication data] having N input ports and N output ports capable of receiving the processed first stream and the processed second stream, wherein the first cross point switch couples the processed first stream to a first input port of the NxN switch fabric in a first configuration and couples the processed second stream to the first input port in place of the processed first stream in a second configuration upon detection of an error condition in at least one of the working circuitry and the first stream of communication data.
2. The apparatus of claim 1, wherein the communication data is ATM cells data.
3. The apparatus of claim 1, wherein the working circuitry receives the first stream from an optical signal and the protection circuitry receives the second stream from the optical signal.
4. The apparatus of claim 1, wherein the working circuitry is implemented on a first circuit board and the protection circuitry is implemented on a second circuit board, the first circuit board being separate and distinct from the second circuit board.
5. The apparatus of claim 1, wherein the working circuitry includes a plurality of first ATM channels performing ATM functions on the first stream and the protection circuitry includes a plurality of second ATM channels performing the ATM functions on the second stream.
6. The apparatus of claim 5, wherein one of the first ATM channels and one of the second ATM channels each include a multiplexer.
7. The apparatus of claim 5, wherein one of the first ATM channels and one of the second ATM channels includes a SONET framer.

8. The apparatus of claim 5, wherein one of the first ATM channels and one of the second ATM channels includes a router.

9. The apparatus of claim 5, wherein one of the first ATM channels and one of the second ATM channels includes a user parameter control unit.

10. The apparatus of claim 1, further comprising:  
a first module including the working circuitry accepts the first stream as input to the working circuitry.

11. The apparatus of claim 1, further comprising:  
a second module including the protection circuitry and having a plurality of ports wherein one of the ports accepts the second stream as input into the protection circuitry.

12. Cancelled.

13. Cancelled.

14. (Amended) The apparatus of claim [12] 1, further comprising a second cross point switch [configured to receive ATM cells from one of the plurality of output ports of the ATM switch fabric and to direct the received ATM cells to one of an output portion of a second working circuitry and an output portion of a second protection circuitry] having N input ports and N output ports capable of receiving the processed first stream or the processed second stream from a first output port of the NxN switch fabric, wherein the second cross point switch couples the first output port of the NxN switch fabric to at least one of an output portion of a second working circuitry and an output portion of a second protection circuitry.

15. The apparatus of claim 1, wherein the error condition is a facility error condition.

16. The apparatus of claim 15, wherein the facility error condition includes a disconnected cable.

17. The apparatus of claim 1, wherein the error condition is an equipment error condition.

18. The apparatus of claim 17, wherein the equipment error condition includes at least one of a failure of a SONET Framer a failure of a multiplexer, a failure of a parameter control unit, and a failure of a router.

19. (Amended) A method providing equipment and facility redundancy for ATM circuitry which carries out ATM functions, comprising:

performing a group of ATM functions with first circuitry on a first stream of ATM cells producing a processed first stream;

performing the ATM functions with second circuitry on a second stream of ATM cells producing a processed second stream, the second stream being identical to the first stream, the first circuitry and the second circuitry implementing the ATM functions, the first circuitry and the second circuitry being synchronized to each other; and

[substituting the second processed stream for the first processed stream for input to a designated port of an ATM switch upon detection of an error condition in the first circuitry, the first processed stream having initially been selected for input to the designated port of the ATM switch,] in a cross point switch having N input ports capable of receiving the first processed stream and the second processed stream and N output ports coupled to N input ports of an NxN switch fabric, coupling the first processed stream to a first input port of the NxN switch fabric in a first configuration and coupling the second processed stream to the first input port of the NxN switch fabric in place of the first processed stream in a second configuration upon detection of an error condition in the first circuitry, thereby providing redundancy protection for the ATM functions.

20. The method of claim 19, wherein the ATM functions include at least one of the multiplexing, SONET framing, routing, and user parameter control.

21. Cancelled.

22. Cancelled.